

[illegible]

Improved methods of administering a synthetic plasma-like solution to a subject, as well as systems and kits for practicing the same, are provided by the subject invention. In the subject methods, the CO₂ level of the subject, particularly the CO₂ level of at least one of the blood and brain of the subject, is reduced prior to administration of the synthetic plasma-like solution. The subject methods find use in a variety of applications where synthetic plasma-like solutions are employed, including the treatment of hypovolemia, hyphemia, and surgical procedures in which at least a portion of a subject's blood is replaced with a synthetic plasma-like solution and provide for a number of improvements, including a reduced risk of acidosis/acidemia and complications associated therewith.

-26-